

**ALTERNATIVES DEVELOPMENT GROUP (ADG)
SOUTHWEST FLORIDA ENVIRONMENTAL IMPACT STATEMENT
MEETING #8, July 30 - 31, 1998**

MEETING NOTES: Final

The notes provided below document the main points and meeting progress that were offered during the meeting on July 30 through July 31. The notes highlight and summarize the key issues that were discussed at the ADG meeting. The following section provides an overall summary of the meeting, and the remaining sections summarize each of the agenda items as they occurred in the meeting. Selected attachments are provided in this document. Note that copies of this document were provided electronically either through e-mail, facsimile, <http://www.saj.usace.army.mil/permit/projects.htm>, or <ftp://ftp.saj.usace.army.mil/pub/bbarron/readme.htm>. Attachments are included in the electronic version when reasonably possible. Otherwise, the full version with all attachments will be distributed at the next ADG meeting.

Meeting Overview

The Alternatives Development Group (ADG) met on July 30 through July 31, 1998, at Florida Gulf Coast University located in Fort Myers, Florida. Thirty of the thirty-three members were represented at the meeting. The roster of attendees is presented in Attachment A. The objectives of this meeting were to (1) receive presentation on water quality of Rookery and Naples Bay, (2) receive presentation on water quality evaluation factor analysis, (3) evaluate ADG alternatives for the hub, and (4) develop alternatives for section "C" of the study area. Additional data sources, references, and maps were also identified at the eighth meeting. See Attachment B for a revised list.

The meeting began the morning of July 30 with administrative announcements followed by the introduction of members/alternates, observers, and the facilitation team. Dale Brown and Tim Feather, lead facilitator and project manager for Planning and Management Consultants, Ltd., respectively, presented the agenda for the eighth meeting.

Michael Simonik of The Conservancy presented a brief overview of water quality issues of Naples Bay. Water quality issues of Rookery Bay and the geographic area monitored by DEP were presented and recommendations were made by Todd Hopkins. This presentation is provided in Attachment C. Dennis Peters presented evaluation factor measurements utilized to address the issue category of water quality. This presentation is displayed in Attachment D.

Tim Feather and Will Walters presented GIS maps and tables for the purpose of evaluating the hub alternatives. The tables generated through GIS area presented in Attachment E. Also, GIS maps were provided to aid the ADG in the development of alternatives for section “C” of the study area.

The alternatives development subgroup spokespersons for the development of alternatives for the hub presented a brief overview of the eight alternatives for the hub. The ADG then broke into their factor specialty groups to evaluate the hub alternatives. A listing of evaluation factors by issue category are provided in Attachment F. To expound upon the factor specialty group’s evaluation of alternatives, the groups ordered the nine alternatives on a continuum of best to worst by the twelve issue categories. The results of the factor specialty groups’ evaluations are presented by issue category in Attachments G through R.

The factor specialty groups were divided among four alternatives development subgroups for the purpose of developing alternatives for section “C” of the study area that address the ADG’s twelve issue categories. The group developed six alternatives for section “C” aside from the Comprehensive Plan. The alternatives display the collective effort of the ADG’s members. These alternatives will be evaluated by the factor specialty groups at the ninth meeting.

Administrative Activities

Dale Brown and Tim Feather opened the meeting with administrative activities. These activities included (1) administrative announcements, (2) overview of the seventh meeting, and (3) presentation of the agenda.

Administrative Announcements

The eighth ADG meeting was brought to order on Thursday, July 30, 1998 at 9:10 a.m. Mr. Brown addressed administrative issues regarding facilities, lunch, and other logistical items. The group was reminded to check the sign-in sheet for attendance and correctness. Mr. Brown began the meeting by requesting introductions of members, alternates, observers, and the facilitation team members.

Seventh Meeting Overview

Tim Feather presented an overview of the seventh ADG meeting using presentation materials provided in Attachment G of the notes from the seventh meeting. Mr. Feather presented the (1) activities, (2) accomplishments, and (3) next steps. A generalization of the seventh meeting was that the County Comprehensive Plans received high marks from the ADG

for property rights and economic issues whereas they received lower marks for environmental issues.

Draft notes for the seventh meeting were distributed to the ADG. Comments regarding the meeting notes were entertained by the facilitation team. One member stated that under the discussion of alternative 2B for the hub the sentence that stated that 2B differs from 2A because it allows conversion of agriculture to low-density residential is incorrect. It was suggested that this statement be removed since it was not part of the proposed alternative.

The method of distribution of the meeting notes will be the use of the Jacksonville District's ftp site (<ftp://ftp.saj.usace.army.mil/pub/bbarron/readme.htm>). A complete set of the draft notes from meeting eight will be provided hardcopy at the ninth meeting.

Agenda

The agenda for the eighth meeting was presented by Tim Feather. First, the ADG heard an overview of water quality for Naples and Rookery Bays by Michael Simonik and Todd Hopkins, respectively. Then, Tim Feather presented the GIS representations of the ADG's alternatives for the hub. GIS generated tables were presented to the factor specialty groups to aid in the evaluation of the hub alternatives. The factor specialty groups then reported to the ADG their evaluation of the alternatives by issue category. During this report out, the water quality factor specialty group provided an overview of their evaluation factor analysis. Afterwards, the factor specialty groups divided into alternative development subgroups to develop alternatives for section "C" of the study area. The alternative development subgroups presented their alternatives to the ADG.

Reference Materials

Several new reference materials were added to the list of materials presented in the notes from meeting seven. The materials are as follows:

- Collier County Environmental Services Division: Pollution Control Department, 1993, Assessment Report: Inland Surface-Water Quality Monitoring Network: (January 1979 to December 1989), Publication Series PC-AR-91-02
- Florida Department of Environmental Protection, 1997, Rookery Bay National Estuarine Research Reserve and the Ten Thousand Islands Aquatic Preserve: Estuarine Habitat Assessment.

- Mollusk and Sediment Contaminant Levels and Trends in South Florida Coastal Waters (1986 to 1994).
- An Environmental Characterization of the Rookery Bay National Estuarine Research Reserve: Phase I (1993).

These materials have been added to the list of references provided in Attachment B. It was emphasized that several reports and maps that were presented during this process should be available to the Corps as they evaluate the Environmental Impact Statement (EIS).

Naples Bay

Michael Simonik of The Conservancy presented to the ADG a brief summary of past, present, and future activities as they relate to the water quality of Naples Bay. Historically, the watershed was ten square miles it is now believed that the watershed is approximately 110 square miles. It is not known whether this equates to a ten fold increase in freshwater flows to Naples Bay. The water quality problems of Naples Bay are primarily a result of nutrient loading and freshwater infiltration as opposed to pesticides and heavy metals. One issue that initiated the study of water quality in Naples Bay was the proposal of the large watercraft, Beaucoup Bus, that would carry vehicles to the Keys.

A survey was completed that queried the concerns of the public. It was discovered that the citizens wanted the bay to be fishable and swimmable. There were large signs around Naples Bay posting pollutant problems at several beaches. It was discovered that the sources and reasons for the signs were not readily known.

There were three topics that the committee on Naples Bay wanted to address: (1) vessel control, (2) water quality, and (3) land management. There was a Harbor Master appointed to oversee the Naples Bay. One issue related to vessel control that the Harbor Master was to address was illegal mooring. Recently, there has been proposed legislation to constrain the number of people per water craft. This legislation will directly address the idea of the Beaucoup Bus. To improve the water quality of Naples Bay it has been suggested to divert water from Golden Gates Estates and reduce the number of dead-end canals and connect additional canals where appropriate. Also, to help address the issue of water quality, the committee will promote the participation of Naples residents in the Florida Yards and Neighborhoods Program. The primary focus of participation is to manage stormwater.

Rookery Bay

Todd Hopkins, Research Coordinator at Rookery Bay National Estuarine Research Reserve (NERR), presented water quality trends of Rookery Bay and the Reserve. The Rookery Bay NERR is jointly managed by the Florida Department of Environmental Protection (DEP) and the National Oceanic and Atmospheric Administration (NOAA). NERR is located in Collier County. The presentation slides are displayed in Attachment C. Mr. Hopkins presented several studies and their findings as well as recommendations for the ADG to consider in development of alternatives for the EIS.

NERR manages 15,000 acres. Freshwater into Rookery Bay comes primarily from Henderson Creek. The coastal area around NERR totals approximately 110,000 acres. This larger coastal area includes Naples Bay and Ten Thousand Islands and their primary freshwater inputs are Black Water River and Faka Union Canal, respectively.

Mr. Hopkins presented results from several studies conducted in the watersheds and coastal areas of Collier County. According to *Assessment Report: Inland Surface-Water Quality Monitoring Network January 1979 to December 1989* conducted by Pollution Control Department of Collier County, in the last decade there has been significant nutrient enrichment in the seven western basins of Collier County. Of these basins, The Cocohatchee River Basin demonstrated the greatest nutrient loading. The study also stated that some of the tools utilized for evaluating water quality are not applicable in Collier County. Mr. Hopkins pointed out that Estuaries are continually variable thus making it difficult to apply indices.

Mr. Hopkins then presented the status of the primary tributary to Rookery Bay, Henderson Creek. A graphic of average monthly precipitation followed by a graphical depiction of freshwater input into the Estuary was displayed. There was significant correlation between the two graphics. However, in recent years the Estuary has experienced lower winter inputs of freshwater and greater summer inputs. This is likely the result of the improperly timed releases from a manually operated weir. There larger summer flow of freshwater has resulted in the loading of phosphates.

Mr. Hopkins then presented findings from a study completed for the Rookery Bay NERR and the Ten Thousand Islands Aquatic Preserve titled *Estuarine Habitat Assessment*. He noted that the Henderson Creek has been altered whereas the Black River remains relatively unaltered. It was also noted that fecal coliform in Henderson Creek had a high Multiple Antibiotic Resistance while those in Blackwater River were low. The Multiple Antibiotic Resistance is a tool by which to distinguish between for example human and other species feces. The high fecal matter in Henderson Creek is a result of primarily human waste. The study also stated that contrary to previous belief, pesticides were not detected in waters immediately adjacent to golf courses, agricultural lands, and plant nurseries. It was suggested this may be a result of immediate dilution due to high amounts of irrigation. Lastly, it was discovered that DDE and DDD and Chlordane were present in sediments. Although these chemicals have not been applied

in a number of years, the stirring up of the sediment could resurface these chemicals in the water. A member of the ADG stated that this may be the reason that there were signs posted in Naples Bay. These chemicals were found to be in the sediment and the posted signs would hopefully deter people from stirring them up again.

Mr. Hopkins introduced another study titled *Mollusk and Sediment Contaminant Levels and Trends in South Florida Coastal Waters*. This study found that there were high levels of heavy metals in oysters from Faka Union Bay. Also, Naples and Rookery Bays' oysters had the highest levels of selenium. Lastly, three of the five highest levels of the pesticide endosulfan in oysters were found in Florida and Rookery Bays.

Two independent studies, the first during the years of 1970 through 1972 and the second in 1990 through 1991, demonstrated the change in the presence of certain fish species in the total population. For example, Pinfish in the first study represented forty percent of all fish caught whereas in the second sample Pinfish was less than five percent. It was noted that Pinfish rely on seagrass beds and this may be an indicator of reductions in seagrass beds due to changes in water quality. Likewise, the Spotfin Mojarra, a species which does not like seagrass, increased significantly. There are no historical seagrass counts, however, the mix of fish populations may be an indicator of seagrass presence and health.

Mr. Hopkins finished his presentation by making a number of recommendations to the ADG. These recommendations are presented in Attachment C. He did note that in a number of cases, permits are granted for small projects for the developer to get an foot in the door and they are expanded through time. He also suggests strongly that development uses natural means by which to reduce pollutants.

Water Quality Model

Dennis Peters, Jeff Rhodes, and Terry Rice with Science Applications International Corporation (SAIC) representing the Environmental Protection Agency (EPA) presented a methodology for evaluating water quality for the purpose of the ADG's evaluation of alternatives. The objectives of SAIC's review of water quality for the study area is twofold (1) review historical and current water quality data and assess changes over time and (2) assess changes in water quality associated with future land use alternatives. SAIC developed a nine step process to achieve these two objectives. The nine steps were as follows.

1. identify watersheds in the ADG study area.
2. identify water quality monitoring stations and water quality data sources within the watersheds.
3. summarize historic and current water quality data and calculate water quality indices for each watershed

4. display the current watershed water quality index as defined by DEP on a map of the entire study area.
5. map water quality index changes since 1970 for each watershed as improved, degraded, or unchanged.
6. identify water quality parameters that most influence the water quality index.
7. map historic, current, and future (alternatives) land use coverage in the study area.
8. estimate future water quality concentrations using a water quality model.
9. calculate water quality indices based on future land use alternatives within each watershed.

The objective, process steps, and example of the process are presented in Attachment D.

There are approximately thirty-eight subbasins in the study area. SAIC chose the Six Mile Cypress Watershed as an example to discuss the nine step analysis process presented above. SAIC identified monitoring stations and collected historic and current water quality data. These data were obtained from a number of sources including STORET, Environmental Protection Agency (EPA), United States Geological Service (USGS), Florida Department of Environmental Protection (DEP), and Lee County Environmental Lab.

SAIC utilized DEP's water quality index. The index is based on percentile distribution of Florida stream data. The index integrates all water quality parameters into a single measure. For Six Mile Cypress, SAIC looked at historical data by decade, 1970s, 1980s, and 1990s. The scores were then compared to review the trend of water quality. The indices derived are placed in one of either three categories good, fair, or poor. The range of indices are as follows:

- 0 - 44 (Good)
- 45 - 59 (Fair)
- 60 - 90 (Poor)

The indices for Six Mile Cypress for the decades 1970, 1980, and 1990 were 53.8, 61.05, and 61.30, respectively. SAIC reviewed what water quality parameters drove these scores. In 1970s, it was primarily biological oxygen demand (BOD). In the 1980s it was BOD and COD. Then in the 1990s, the parameters that drove the score were BOD, DO, TSS, and total P.

The model utilized was developed by several agencies and requires specific loading coefficients as well as geographic inputs. The models estimate select water quality parameter concentrations. The inputs of the model included: (1) acres by land use type, (2) mean annual precipitation, (3) runoff coefficient by land use type, and (4) surface water volume of receiving water. The output of the model is the estimate of parameter concentrations for a receiving body.

Given the Comprehensive Plan alternative and the example watershed Six Mile Cypress, it was estimated that in the year 2010 concentrations of nitrogen, phosphorus, lead, copper, BOD, and zinc would all increase significantly in Six Mile Cypress due to the changing land use types.

It was noted that in the Comprehensive Plan the land use map is really a buildout scenario to the year 2070. This is part of the reason for such significant increases in concentrations.

An ADG member asked whether the model accounted for new water quality standards associated with developments. In response to this statement, another member stated that even though there are standards there is not necessarily compliance. Mr. Peters agreed that these ideas need to be accounted for in the models and interpretation of estimates. It was pointed out that between the years 1988 and 1995 there were decreases in concentrations followed by sharp increases through the year 2010. Mr. Peters stated that these were estimates derived from land use types not by actual water quality data. Also, the maps of land use in 1995 were much more detailed than those in 1988. It was also stated that when evaluating the Comprehensive Plan to use the Lee County 2020 allocation tables rather than the build out numbers. It was noted by an ADG member that these indices for the study area should be compared to those regionally not the entire state of Florida.

Mr. Peters stated that all of these items will be taken into consideration. SAIC is still verifying and validating the model and the report on progress.

GIS Products

Tim Feather presented the GIS representations of the ADG's alternatives for section "B" of the study area, hub. The ADG developed eight alternatives at meeting seven. Spokespersons for each of maps presented a brief overview of each alternative. Inaccuracies in the GIS representations were noted by the spokespersons.

Tim Feather presented the following GIS maps.

- Existing Land Use
- Existing Land Use with PUD, DRI, RPD, etc
- Future Land Use (Comprehensive Plan)
- Future Land Use with SHCA Overlay
- Species Data

Given the eight alternatives and current GIS overlays, tables were generated to provide information necessary for the evaluation of the hub alternatives. These tables are provided in Attachment E.

Evaluation of Hub Alternatives

The factor specialty groups evaluated the eight alternatives developed at meeting seven for the hub as well as the Comprehensive Plan alternative that was evaluated at the previous meeting. These alternatives are described in the notes from meeting seven. Dale Brown stated that for the purpose of reporting and clarification, the groups should provide quality explanation for the evaluation of the alternatives. Then, the factor specialty groups were directed to determine the best and worst alternatives by issue category. All other alternatives would be placed on a continuum between the best and worst alternatives by issue category. Then, the factor specialty groups presented their evaluations to the ADG.

Property Rights

The factor specialty group evaluated the eight alternatives developed by the ADG for the hub. To address the issue of property rights the group utilized three factors. These factors are presented in Attachment F. The evaluation of the alternatives by factor are also provided in Attachment G. Once the alternatives were evaluated, the best and worst alternatives with respect to property rights were determined. The remainder were compared amongst each other and placed accordingly on a continuum of best to worst. The factor specialty group explained their placement of alternatives from best to worst to the ADG. A graphical depiction of this best to worst continuum is presented in Attachment G.

Alternatives 4A and the Comprehensive Plan were both considered to be the best alternatives for property rights. Both displayed a realistic reflection of existing property uses and vested development rights. However, alternative 4A had a more balanced urban area designation for Immokalee whereas the Comprehensive Plan overestimated the town's growth potential. Alternatives 2C, 3A, and 4B were determined to be the worst of the nine alternatives for the hub. These three alternatives presented the highest negative impact on agricultural property rights. All three alternatives reduced the urban area of the town of Immokalee. Alternative 2C did not recognize FGCU or Corkscrew DRI. Alternative 4B suggested placing additional criteria on urban development but it does recognize mining. Alternatives 3B and 2A were considered better than 2C, 3A, and 4B. Alternative 3B recognizes mining and more agriculture. However it reduces the Immokalee urban area and does not recognize Corkscrew DRI or FGCU. Alternative 2A increases Lee County's urban area by thirty percent and recognized the construction of Pelican Sound and West Bay Club. However, it was restrictive to agricultural property rights and reduced Immokalee's urban area. Alternatives 1A and 2B were considered better than the previous alternatives for a couple of reasons (1) moderate reduction in Immokalee urban area and (2) negative impacts to agricultural property rights were moderate.

Local Land Use Policy

The factor specialty group evaluated the eight alternatives developed by the ADG for the hub. The group to address the issue of local land use policy utilized two factors presented in

Attachment F. The evaluation of the alternatives by factor are also provided in Attachment H. Each evaluation factor was measured on a scale of one to four where a score of one is worst and 4 is best. The score received for both factors were totaled to produce a sum total. The highest possible total was eight points.

Once the alternatives were evaluated, the best and worst alternatives with respect to local land use policy were determined by total score. The remainder were compared amongst each other and placed accordingly on a continuum of best to worst. The factor specialty group explained their placement of alternatives from best to worst to the ADG. A graphical depiction of this best to worst continuum is presented in Attachment H.

Alternatives 4A and the Comprehensive Plan were considered the best in terms of local land use policy. Each scored six out of a possible eight points. The worst alternatives were 2C, 3A, and 4B with total scores of three out of eight. There was some discussion that the berm presented in alternative 4B if also described as a possible road for hurricane evacuation purposes it may score higher on the factor of hurricane preparedness. Alternatives 2A and 3B scored four out of eight and 1A and 2B scored five out of a total of eight possible points.

Economic Sustainability

The factor specialty group evaluated the eight alternatives developed by the ADG for the hub. The group to address the issue of economic sustainability utilized seven factors presented in Attachment F. The evaluation of the alternatives by factor are also provided in Attachment I. Each evaluation factor was measured on a scale of one to four where a score of one is worst and 4 is best. The score received for both factors were totaled to produce a sum total. The highest possible total was twenty-eight points.

Once the alternatives were evaluated, the best and worst alternatives with respect to economic sustainability were determined by total score. The remainder were compared amongst each other and placed accordingly on a continuum of best to worst. The factor specialty group explained their placement of alternatives from best to worst to the ADG. A graphical depiction of this best to worst continuum is presented in Attachment I.

The two best alternatives are 4A and the Comprehensive Plan in terms of economic sustainability. Both alternatives received a score of fifteen out of twenty-eight possible points. The two best alternatives accommodated for Lehigh Acres. The three equally worst alternatives in terms of economic sustainability were 2C, 3A, and 4B. Each scored the lowest possible points, one, for all factors. Alternatives 3B, 2A, 1A, and 2B scored 10, 11, 12, and 12, respectively. A member of the ADG asked whether the alternatives presented disproportionately impacted agricultural areas with respect to economic sustainability and is this considered an issue of environmental justice. In response, it was stated that yes, many of the alternatives did significantly impact agricultural areas, but this is not an issue of environmental justice.

Regulatory Efficiency and Effectiveness

The factor specialty group evaluated the eight alternatives developed by the ADG for the hub. The group to address the issue of regulatory efficiency and effectiveness applied three factors presented in Attachment F. Once the alternatives were evaluated, the best and worst alternatives with respect to regulatory efficiency and effectiveness were determined. The remainder were compared amongst each other and placed accordingly on a continuum of best to worst. The factor specialty group explained their placement of alternatives from best to worst to the ADG. A graphical depiction of this best to worst continuum is presented in Attachment J.

However, it was determined that the factor addressing Fish and Wildlife Service, Game and Fish Commission, and public concerns were covered by other issue categories and was dropped as a factor to address regulatory efficiency and effectiveness. The original assessment measure for the pre-identified impact and mitigation areas of one-hundred percent of alternative maps colored in found no differentiation among alternatives. All alternatives maps had all areas identified and colored appropriately. Given the ineffectiveness of these factors to discriminate among alternatives, it was suggested that either the issue category of regulatory efficiency and effectiveness is not appropriate or the factors by which to evaluate alternatives need to be re-defined.

It was suggested that more criteria provided with each alternative may make the regulatory process more efficient and effective. This would be difficult to determine. Another possibility is to determine the levels of controversy associated with particular geographic areas or criteria of an alternative. It was also suggested that the Comprehensive Plan is the best of all alternatives for regulatory efficiency and effectiveness due to its maturity. Lastly, it was offered that the issue of regulatory efficiency and effectiveness and its respective factors may be applicable as the ADG tries to reach consensus alternatives at future meetings.

Avoidance of Wetland Impacts

The factor specialty group evaluated the eight alternatives developed by the ADG for the hub. The group to address the issue of avoidance of wetland impacts utilized two factors presented in Attachment F. The evaluation of the alternatives by factor are also provided in Attachment K. The factors address the idea of acres and acres by level of function at risk by an alternative.

Once the alternatives were evaluated, the best and worst alternatives with respect to avoidance of wetland impacts were determined by comparing the indices of risk calculated for

each alternative. The remainder were compared amongst each other and placed accordingly on a continuum of best to worst. The factor specialty group explained their placement of alternatives from best to worst to the ADG. A graphical depiction of this best to worst continuum is presented in Attachment K.

Alternative 2C was considered the best with respect to avoidance of wetland impacts. It received the lowest risk scores for both acres and functional acres of wetlands at risk. The worst alternative was the Comprehensive Plan. The Comprehensive Plan had both the greatest number of wetlands acres at risk and the greatest acres of high functioning wetlands at risk. Alternative 4A was considered slightly better than the Comprehensive Plan with few acres at risk. Alternatives 1A, 2A, 2B, and 3B were considered to place equal amounts of acres and function at risk. These alternatives were placed at the mid-point of the continuum of best to worst. Alternatives 3A and 4B were considered to be next to the best alternatives in terms of avoidance of wetland impacts. Each of these two alternatives impacted very few wetland acres of low functionality.

There was some confusion among the group about the criteria and differentiation between alternatives 4A and 4B. The alternatives development subgroup that developed alternatives 4A and 4B clarified these alternatives. Alternative 4A used Corps, SFWMD, and County (current and 2010) criteria for agriculture, development, and urban areas. Also, added to 4A was the flowways identified in the South Lee County Watershed Plan. Additional criteria and the berm concept were included in Alternative 4B.

Mitigation

The factor specialty group evaluated the eight alternatives developed by the ADG for the hub. The group to address the issue of mitigation applied two factors presented in Attachment F. The evaluation of the alternatives by factor are also provided in Attachment L. The factors address the idea of acres available for mitigation and acres by level of function available that are not publicly owned.

Once the alternatives were evaluated, the best and worst alternatives with respect to mitigation were determined by comparing the indices of opportunity calculated for each alternative. The remainder were compared amongst each other and placed accordingly on a continuum of best to worst. The factor specialty group explained their placement of alternatives from best to worst to the ADG. A graphical depiction of this best to worst continuum is presented in Attachment L.

Alternative 2C was considered the best alternative in terms of mitigation. It scored the highest ratios for both acreage and functionality. However, alternative 4A was determined to be the worst producing the lowest ratios for acreage and functionality. The Comprehensive Plan was slightly better than alternative 4A. The remainder of the alternatives, 1A, 2A, 2B, 3A, 3B, and 4B produced ratios that placed them equal distances from being the best or the worst on the continuum.

Ecosystem Function, Wildlife Habitat, and Listed Species

The factor specialty group evaluated the eight alternatives developed by the ADG for the hub. The group to address the issue of ecosystem function, wildlife habitat, and listed species applied twelve factors presented in Attachment F. The evaluation factor of priority I and II panther habitat were reviewed separately thus there were a total of thirteen evaluation factors. The evaluation of the alternatives by factor are also provided in Attachment M. The eight alternatives and the Comprehensive Plan were ranked with a total possible score of 117. The lower the score the better the evaluation of the alternative. Thus, a ranking of one is best and nine worst by evaluation factor. The factor specialty group noted that they applied the data provided via GIS as well as best professional judgment to evaluate the alternatives.

Once the alternatives were evaluated, the best and worst alternatives with respect to ecosystem function, wildlife habitat, and listed species were determined by assessing the total score of each alternative. The remainder were compared amongst each other based on the score received and placed accordingly on a continuum of best to worst. The factor specialty group explained their placement of alternatives from best to worst to the ADG. A graphical depiction of this best to worst continuum is presented in Attachment M.

The best alternative with respect to ecosystem function, wildlife habitat, and listed species was alternative 2B which produced the lowest score of all the alternatives thus ranking the highest. Alternative 2B was closely followed by alternatives 2C, 2A, and 3B, respectively. The worst of the nine alternatives were the Comprehensive Plan, 4A, and 4B, respectively.

Cumulative and Secondary Impacts

The factor specialty group evaluated the eight alternatives developed by the ADG for the hub. The group to address the issue of cumulative and secondary impacts applied eleven factors presented in Attachment F. The evaluation of the alternatives by factor are also provided in Attachment N. Once the alternatives were evaluated, the best and worst alternatives with respect to cumulative and secondary impacts were determined. The remainder were compared amongst each other and placed accordingly on a continuum of best to worst. The factor specialty group explained their placement of alternatives from best to worst to the ADG. A graphical depiction of this best to worst continuum is presented in Attachment N.

Of the eleven factors, nine were used to evaluated and discriminate among alternatives. The factor of spawning potential was permanently removed from the list of factors needed to address cumulative and secondary impacts. Given that the factor specialty group assumed no

difference in population among alternatives, crime rate was considered the same for all alternatives. For the remaining nine factors, six received scores and the remaining three were evaluated with explanation. Notes on the evaluation and factors by the group are presented in Attachment N.

The factor specialty group, in order to determine the best and worst alternatives, ranked the alternatives by evaluation factor as presented in Attachment M. From this ranking an average of rankings was completed by alternative. On a scale of one to eight, where one is the best and 8 is the worst possible score, alternative 2B was determined to be the best alternative with respect to cumulative and secondary impacts. It ranked highest for four of ten evaluation factors. The worst alternative was 4B which scored the worst for seven of ten evaluation factors. Alternative 4A was next to worst scoring next to worst for six of ten factors.

Public Lands Management / Use

The factor specialty group evaluated the eight alternatives developed by the ADG for the hub. The group to address the issue of public lands management/use utilized three factors presented in Attachment F. The evaluation of the alternatives by factor are also provided in Attachment O. Once the alternatives were evaluated, the best and worst alternatives with respect to public lands management/use were determined. The remainder were compared amongst each other and placed accordingly on a continuum of best to worst. The factor specialty group explained their placement of alternatives from best to worst to the ADG. A graphical depiction of this best to worst continuum is presented in Attachment O.

In the evaluation of alternatives, the factor specialty group proposed combining the three previously identified evaluation factors into one factor. The factors were (1) land management plan, (2) degradation, and (3) funding. The group evaluated the alternatives with essentially one factor impact to public land management/use. Many of the faults of the alternatives as they relate to the issue of public lands are centered around the reliance on the criteria associated with the alternatives. Also, the impact upon the CREW area was often noted. The group reviewed the proposed land uses adjacent to public lands and the restoration of flowways to estuaries.

Of the nine alternatives, 2A and 2B were considered the best alternatives with respect to public land management/use. Both alternatives have large, contiguous preserve lands next to existing public lands resulting in fewer resource conflicts. Also, they address the restoration of flowways to publicly owned estuaries. However, there is some concern with land uses adjacent to the CREW area. The worst alternative was determined to be 4B. The berm created uncertainty with respect to impacts of public lands. It was thought that the berm may impact the hydrology of the CREW area and provide access for development around the CREW. Also, there were inadequate connections to estuarine public lands. Alternatives 4A and the Comprehensive Plan were considered to be slightly better than 4B. These two alternatives did not have a berm proposed, however, they did not address either flowways or conflicting uses near public lands such as the CREW Trust. Alternatives 1A, 2C, 3A, and 3B were similar with respect to public

lands management/use. Some protected the CREW area better than others while several addressed flowways.

An ADG member asked how criteria could be seen as putting public lands at risk. It was stated that some of the alternatives and respective criteria were more conducive to public lands management than others. There was some discussion of whether the berm would be appropriate and would work to meet its objective. It was stated that this alternative was not considered poor due to whether the berm works or not but the berm is proposed to be built through important wetlands thus opening the area for potential development.

Water Quality

The factor specialty group evaluated the eight alternatives developed by the ADG for the hub. The group to address the issue of water quality applied five factors. These factors are presented in Attachment F. The evaluation of the alternatives by factor are also provided in Attachment P. Once the alternatives were evaluated, the best and worst alternatives with respect to water quality were determined. The remainder were compared amongst each other and placed accordingly on a continuum of best to worst. The factor specialty group explained their placement of alternatives from best to worst to the ADG. A graphical depiction of this best to worst continuum is presented in Attachment P.

The factor specialty group used a method of (+) and (0) to identify whether the alternative addressed the evaluation factors. The (+) identifies that the alternative address the factor whereas the (0) identifies that it did not. This method was applied for the factors of (1) pollution loading, (2) freshwater pulses, (3) habitat loss, and (4) groundwater impacts. The water quality index and the water quality model presented in a previous section of the notes was utilized to address the fifth evaluation factor. The index was calculated and the alternatives were identified as ranging from best to worst. See Attachment P.

The group identified that alternatives 2C and 4B were the best with respect to water quality. These alternatives address all the factors identified by the factor specialty group. The two worst alternatives in terms of water quality were 4A and the Comprehensive Plan. These did not address any of the water quality factors identified by the factor specialty group.

Restoration Retrofit

The factor specialty group evaluated the eight alternatives developed by the ADG for the hub. The group to address the issue of restoration retrofit applied two factors presented in Attachment F. The evaluation of the alternatives by factor are also provided in Attachment Q. The factor specialty group used a method of (+) and (0) to identify whether the alternative

addressed the evaluation factors. The (+) identifies that the alternative address the factor whereas the (0) identifies that it did not.

Once the alternatives were evaluated, the best and worst alternatives with respect to restoration retrofit were determined by comparing the number of (+) received by the alternatives. The remainder were compared amongst each other based on the method described above and placed accordingly on a continuum of best to worst. The factor specialty group explained their placement of alternatives from best to worst to the ADG. A graphical depiction of this best to worst continuum is presented in Attachment Q.

Alternative 4B was considered the best alternative given that it addressed four of the five factors. Although alternative 4A also addressed four out of five the group considered near the best but not quite. Alternatives 3A and 2C also addressed four out of five factors but did not receive as high as placement as 4B and 4A because they did not address the restoration of flowways. Alternatives 2B and 3B were determined to be the worst alternatives each only addressing one of the five factors.

Water Management

The factor specialty group evaluated the eight alternatives developed by the ADG for the hub. The group to address the issue of water management applied seven factors presented in Attachment F. The evaluation of the alternatives by factor are also provided in Attachment R. The factor specialty group used a method of (+) and (0) to identify whether the alternative addressed the evaluation factors. The (+) identifies that the alternative address the factor whereas the (0) identifies that it did not.

Once the alternatives were evaluated, the best and worst alternatives with respect to water management were determined by comparing the number of (+) received by the alternatives. The remainder were compared amongst each other based on the method described above and placed accordingly on a continuum of best to worst. The factor specialty group explained their placement of alternatives from best to worst to the ADG. A graphical depiction of this best to worst continuum is presented in Attachment R.

Alternative 4B was considered the best alternative in terms of water management. This alternative addressed five of the seven factors. Also, alternative 4B was considered the best for water management given the concept of the berm. The Comprehensive Plan and alternative 4A were considered next to the best each addressing three of the seven factors. The worst alternatives were 1A, 2A, 2B, and 3B. These alternatives directly addressed the factor regarding restoration of flowways but did not address the remaining six factors. Alternatives 3A and 2C addressed two of the seven factors.

Section C Alternatives Development

Dale Brown and Tim Feather introduced the activity of developing alternatives for section C of the study area. Four alternatives development subgroups were created from the ADG. To ensure that each issue category was taken into account during the development of alternatives, members of each of the four factor specialty groups were included in the alternatives development subgroups. Each subgroup also had a member(s) of the GIS council to provide GIS interpretation. The task of the four subgroups was to develop no more than two alternatives for section C that effectively considers the issues/factors identified by the ADG. Spokespersons for each group were expected to be prepared to present to the ADG the subgroup's alternatives. The spokespersons had to address three topics of alternatives development.

1. present alternative(s)
2. explain legend
3. provide subgroup discussion highlights

The ADG members were asked to pay close attention to the presentation of alternatives for future synthesis of alternatives.

Color coding of basic land uses were suggested by the facilitation team at meeting seven. These colors were as follows:

- water (blue)
- development (red)
- environment (green)
- other (black)
- agriculture (red with black hatch)

The color scheme of alternatives maps were placed on legends with explanations. The maps of the alternatives developed in this activity will be presented to the group at the next meeting in digitized form within the ADG GIS.

Alternative 1A

Alternative 1A was developed using existing land uses as its origin. The group identified areas already approved for preservation purposes. The group identified Sable Bay as important to preserve but noted that this is a controversial location. South Belle Meade is currently agricultural and light industrial. It appear that this area will soon convert to a residential area. The

alternatives development subgroup suggested using the Twin Eagles criteria for developing the residential area. This same criteria is proposed to be applied along the Immokalee road corridor.

It was noted that Golden Gate Estates is experiencing the most rapid growth in Collier County. There are no commercial businesses in this area. There is about one hundred acres of preserve. This alternative proposed a flowway program for Golden Gate Estates. North Belle Meade is a wetland and an important component of a flowway and is continued to be proposed for preservation. There was some discussion of the current permitting in Golden Gate Estates. It was noted that SFWMD is not able to address single family housing. One member stated that there is a problem with septic drain fields being placed in wetlands.

Alternative 1B

Alternative 1B like 1A was developed using existing land uses as its origin. There are four areas of difference between Alternative 1A and 1B. First, north Belle Meade has a core area that needs to be addressed for preservation. The fringe of this core does not necessarily need to be placed into preservation. Second, the subgroup stated that Sable Bay is currently privately owned and most likely will never be sold. Third, there is agricultural land along state route 41 that is feeling pressure from development. The group suggested there needs to be areas of transition. Lastly, there is some question to the restoration of North Golden Gate Estates

Alternative 2

Alternative 2 allows the rural (rural includes low-density residential and nurseries) areas north of Alligator Alley and south of Golden Gate. The subgroup identified a zone around Immokalee road that needs to be preserved for wetlands, panther, and bear. Also, an additional zone was identified for bear, red cockaded woodpecker, and fox squirrel. An area north of Alligator Alley was proposed for preservation. This area is currently not a CARL project. Some areas are private wetlands that could be in jeopardy. Both Clam and Naples Bay were proposed for preservation. For agricultural lands, it was proposed that they remain agricultural with no intensification, per the written criteria for agriculture in the hub. Golden Gate Estates is divided into east and west of which the west is the most developed of the two sides. It was proposed that parts of the eastern half be used as a mitigation receiving area. The subgroup suggested mitigation funds generated by wetland impacts in western Golden Gate Estates could buy out current land owners on the eastern side. The subgroup noted that those owners developing on the western half of Golden Gate Estates are not following the permitting process. Thus, it is suggested to minimize wetland impacts on the west side of Golden Gate Estates. Criteria are provided in Attachment S. Another wetland area of interest in Golden Gate Estates area is Picayune Strand. An ADG member asked why SHCA did not show this area. It was stated that SHCA is based on larger property ownership, not small property ownership like that found at Picayune Strand.

Alternative 3A

The alternatives development subgroup used the following combination of colors red, green, red and black, red and green, and blue to delineate urban, conservation, agriculture, controversial locations, and Golden Gate Estates, respectively. This alternative recognized the urban areas of the Comprehensive Plan. However, it differed along a one mile area east of Route 951. The agricultural area south of State Route 41 is proposed to remain in agriculture. The alternative also addressed Corkscrew Swamp, flowways through east Naples, and Golden Gate Canal.

The alternative proposed that Golden Gate Estates be developed under its current permit, however, the alternative addressed improvements for the protection of isolated wetlands. These improvements include: (1) no general permits, (2) jurisdictional permits issued prior to Collier County approval, (3) improve function of isolated wetlands using historic information, and (4) limit the clearing allowed on private lots to fifty percent.

An ADG member stated that there are so many single-family residences in Golden Gate Estates that the Corps would have to process two permits a day to address what is proposed in this alternative. The subgroup recognized this point and stated that it is an option. Resources to accomplish this type of intensive permitting continues to be a problem. Also, an ADG member stated that the canals in Golden Gate Estates are so deep that it may be impossible to restore flowways. The subgroup responded that this alternative addresses the issue of canals for the purpose of connecting of isolated wetlands as well as provided wildlife habitat.

Alternative 3B

This alternative is very similar to alternative 3A. However, it differs in the fact that it fully recognizes the Comprehensive Plan. The colors used for delineation match those used in the Comprehensive Plan. It differs from the Comprehensive Plan in several ways. In the Comprehensive Plan Golden Gate Estates is designated as a rural residential area. The subgroup wants to further that designation by allowing no more that fifty percent of the privately owned lots be cleared. Also, this alternative strives for the interconnectivity of wetlands through the permit process. The alternative also proposed the clustering of rural residential areas similar to Twin Eagles. In addition, the alternative addressed the maintenance and restoration of flowways in urban areas (i.e., east Naples) through acquisition.

Alternative 4

This alternative established the urban boundary line, one mile east of Route 951, and from that line west to the coast designated this to be urban. However, it did recognize flowways and existing preservation areas within the urban designation. Currently, in the Belle Meade area are agricultural land uses that will likely transition into urban uses. This alternative maintains the Comprehensive Plan's rural residential designation of Golden Gate Estates. However, in Golden Gate City this alternative proposes the increase in residential densities. An ADG members stated that this would be a matter of rezoning. The subgroup concurred that this alternative proposed the rezoning of Golden Gate City. However, they did not state what the density of this area is proposed to be. It was stated that it might be similar to the Twin Eagles area.

Alternatives Analysis

Mr. Brown and Mr. Feather asked the spokespersons of each alternatives development subgroup to compare the six alternatives for section C of the study area. An overall statement was that these alternatives are approximately eighty percent similar. They are similar around the areas of south and north Belle Meade. North Belle Meade appears to remain in a state of preserve and conserve. There is some similarity among the alternatives regarding the agricultural area in southern Collier County on State Route 41 as well as the Immokalee corridor. However, there are slight differences among alternatives regarding Golden Gate Estates, Sable Bay, and existing urban and residential areas south of State Route 41. These alternatives will be evaluated at meeting nine. GIS tables generated for section C and the Comprehensive Plan are presented in Attachment T.

Section A and D Alternatives Development

Each member of the ADG were provided maps of sections A and D of the study area. The study area was divided into four sections A, B, C, and D. See Attachment U. These maps were provided to the ADG for the purpose of developing initial alternatives for these sections of the study area between meetings eight and nine.

Meeting Eight Summary

Mr. Feather used a format of the summary presentation to the ADG similar to that of the previous meetings focused around the following topics.

- Activities (who, what, where, and why)
- Accomplishments
- Next steps
- Next meeting information

Summary of meeting eight will be presented in the notes to be provided at meeting nine. A summary will be presented by Mr. Feather at meeting nine. The summary presentation is provided in Attachment V.

Next Meeting

The ninth meeting will be held at the Collier County Extension Service, 14700 Immokalee Road, Naples, Florida on August 13 and 14, 1998. Topics of the meeting will be a presentation on water management issues in Collier County, review of latest GIS products, evaluation of section C alternatives, and development of alternatives for sections A and D of the study area.

ATTACHMENT A

ALTERNATIVES DEVELOPMENT GROUP MEETING #8 ATTENDEES

**LIST OF ATTENDEES
ALTERNATIVES DEVELOPMENT GROUP
MEETING #8, JULY 30-JULY 31, 1998**

Members Represented:

Robert S. Baker
Council of Civic Associations

Rick Barber
Chief Executive Officer
Agnoli, Barber & Brundage, Inc.

Charles Gauthier (alternate for Tom Beck)
Department of Community Affairs

John Cassani
Lee County Hyacinth Control District

David Burr (alternate for Wayne Daltry)
Executive Director
SW FL Regional Planning Council

Claudia Davenport
Big Cypress Basin Board

Harry Rodda (alternate for David Douglas)
David Douglas Assoc., N Ft. Myers Chamber of Commerce

Kim Dryden
U.S. Fish and Wildlife Service

Tim Durham
Wilson, Miller, Barton & Peek, Inc.

Gary Lee Beardsley (alternate for Clara Anne Graham-Elliott)
League of Women Voters of Lee County

William Jolly (alternate for John Folks)
Department of Agriculture and Consumer Services

Edward Griffith
Director of Planning
WCI Communities

David Guggenheim
The Conservancy of Southwest FL

Karen Johnson (alternate for Bill Hammond)
South Florida Water Management District

Bradley J. Hartman and Jim Beever (alternate)
Director, Office of Environmental Services
Florida Game and Fresh Water Fish Commission

Gary Maier (alternate for Peggie Highsmith)
Department of Environmental Protection

Ronald Inge
Harper Bros., Inc.

Wallace Kain
Mayor
City of Sanibel

Terry Rice (alternate for Al Lucas)
U.S. Environmental Protection Agency

Chip Merriam
Director, Fort Myers Service Center
South Florida Water Management District

Katherine English (alternate for Neale Montgomery)
Paves, Garner, Haverfield, Dalton, Harrison & Jensen

Bob Mulhere
Director, Collier County Planning

Paul O'Connor
Planning Division Director
Lee County

Robert H. Roth, P.E.
Barron Collier Partnership/Silver Strand Division

Fran Stallings

Mark P. Strain
Gulf Bay Communities, Inc.

Kris Thoemke
Director, Everglades Project
National Wildlife Federation

Mike Roeder (alternate for Matthew D. Uhle)
Economic Dev. Coalition of Lee Co.

Whit Ward and Michael Reitmann (alternate)
Collier Building Industry Association, Inc.

John R. Hall
Department of the Army, Jacksonville District Corps of Engineers, Regulatory
Division

Members Not Represented:

Earl Kegg
Collier County Representative

Richard Klaas
Florida Real Estate Consultants

Bonnie Kranzer
Governor's Commission for Sustainable South Florida

Observers:

W.T. Olds, Jr.
U.S. Fish & Wildlife Service

Tim Jones
Lee County

Jeff Rhodes
SAIC/EPA

Todd Hopkins

DEP-Rookery Bay
Cullum Hasty
alternate for Fran Stallings

Michael Simonik
The Conservancy

Ted Kircher
Naples Daily News

Nora Demers
FGCU

Dennis Peters
SAIC

Brian Bellman
Citizen of Marco Island

Jon Inglehart
Florida DEP

Facilitation Team:

Timothy Feather
Program Manager
Planning and Management Consultants, Ltd.

Dale Brown
Lead Facilitator
Planning and Management Consultants, Ltd.

Michael Beezhold
Meeting Recorder
Planning and Management Consultants, Ltd.

ATTACHMENT B

REFERENCES

Storm Surge Atlas - Lee & Collier Counties
Hurricane Preparedness/ Evacuation Study
Hurricane Shelter Deficit Reduction Report
Charlotte Harbor NEP Area Studies
State of Bay - Agency for Bay Management
Composite Strategies Conservation Map - Work in Progress
South Florida Study - 1973
Soil Survey of Collier County
Soil Survey of Lee County, Florida
Soil Survey: Detailed Reconnaissance Collier County, Florida: Series No. 8 (1942)
Future Land Use Map: Collier County
Open Spaces: Collier County (map)
Generalized Existing Land Use Map, Collier County, Florida (1-7)
Future Land Use Map (map 1): Lee County
Map of Lee County: Existing Land Uses
Nominations with Secondary Screening Criteria Ratings: Lee County (map)
The 1994 Lee Plan: 1996 Codification: as amended through May 1997
Lee County Planned Development Update: revised 1998
Lee County Comprehensive Plan
Wetlands map
Lee County projects development approvals
Lee County land use database
Lee County: Planning Community Existing Conditions Summary
Strategic Habitat Conservation Areas (map)
Florida Black Bear: Potential Habitat (map)
Florida Panther: Potential Habitat (map)
Wading Bird Rookery, Bald Eagle, and Florida Scrub Jay locations
Bio-diversity Hot Spots
Collier County Manatee Mortality: 1/74-10/97 (map)
Collier County Manatee Mortality: February 1998 (map)
Lee County Manatee Mortality: February 1998 (map)
Southwest Florida Region Regionally Significant Natural Resources (map)
Collier, Hendry, and Lee County Future Land Use 2010: (Southwest Florida Regional Planning Council)
Study Area of the Caloosahatchee Water Management Plan (SFWMD)
Sustainable America: A New Consensus For Prosperity, Opportunity, and a Healthy Environment for the Future. (February 1996)
Wetlands Regulation and the Takings Issue (Robert Multz)
Takings Law in Plain English (Christopher Duerksen and Richard Roddewig)
Closing the GAPS in Florida Wildlife (Habitat Conservation System, 1994)
Southwest Florida Strategic Regional Policy Plan (1995)
Southwest Florida District Water Quality – 1996 305(b) Technical Appendix
Estero Bay Drainage Basin: Lee, Collier, and Hendry County
The Local Impact of Home Building in Naples, Florida (1997)
The Local Impact of Home Building in Lee County, Florida (1997)

Nation Association of Home Builders Local Impact of Home-building Model (1997)
Interim Final Guidance for Incorporating Environmental Justice Concerns in EPA's
NEPA Compliance Analyses (EPA 1997)
Microcomputers and Economic Analysis: Spreadsheet Templates for Local Government
(revised and expanded edition 1987)
Environmentally Sensitive Index maps: Peninsula 2 Florida
Lee County: Planning Community Existing Conditions Summary
Henderson Creek Canal: request for consideration by concerned citizen
Collier County Environmental Services Division: Pollution Control Department, 1993,
Assessment Report: Inland Surface-Water Quality Monitoring Network: (January
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Florida Department of Environmental Protection, 1997, Rookery Bay National Estuarine
Research Reserve and the Ten Thousand Islands Aquatic Preserve: Estuarine
Habitat Assessment
Mollusk and Sediment Contaminant Levels and Trends in South Florida Coastal Waters
(1986 to 1994)
An Environmental Characterization of the Rookery Bay National Estuarine Research
Reserve: Phase I (1993)
South Lee County Watershed Plan: draft (1998)

ATTACHMENT C

ROOKERY BAY PRESENTATION

ATTACHMENT D

WATER QUALITY MODEL PRESENTATION

ATTACHMENT E

GIS PRODUCTS/TABLES

ATTACHMENT F

EVALUATION FACTORS BY ISSUE CATEGORY

EVALUATION FACTORS BY ISSUE CATEGORY

A. *Property Rights*

- A1. Fair market value
- A2. Reasonable expectations for use of land and return on investment
- A3. Vested rights
- A4. ~~Environmental justice~~ (see economic sustainability)

B. *Ecosystem Function, Wildlife Habitat, and Listed Species*

- B1. Affects on GFC SHCAs habitat planning objectives
- B2. Affects on FWS type 1 & 2 panther habitat
- B3. Affects on RPC natural resource goals
- B4. Affects on FWS Recovery Plans & FL Panther Habitat Cons. Plan
- B5. Affects occurrences of listed species
- B6. Affects occurrences of rookeries
- B7. Affects loss of native plant communities (common and rare)
- B8. Affects fragmentation & connectivity of plant animal habitats
- B9. Loss of seasonal wetlands
- B10. Affects integrity of flowways (rivers, sloughs, strands)
- B11. Wetlands of important to critical wildlife
- B12. Affects on aquatic resources

C. *Regulatory Efficiency and Effectiveness*

- C1. Permit review time and level of effort
- C2. Pre-identified impact/mitigation and preserve areas
- C3. ~~FWS/GFC public general concerns addressed~~

D. *Local Land Use Policy*

- D1. Significance of conflicts with local land use plans and regulations
- D2. Hurricane preparedness evacuation routes

E. *Cumulative/Secondary Impacts*

- E1. Impacts on infant mortality
- E2. Impacts on road needs
- E3. Impacts on air pollution loading
- E4. Impacts on water pollution loading
- E5. Impacts on crime rates
- E6. Impacts on hurricane vulnerability

- E7. EPA index of watershed indicators
- E8. Impacts on wetlands only
- ~~E9. Spawning potential ratio (SPR)/fish lands~~
- E10. Impacts on hydrology
- E11. Amount of lands in public and private ownership in protected status

F. Avoidance of Wetland Impacts

- F1. Number of acres of wetland impacted
- F2. Wetland functions impacted

G. Water Management

- G1. Infrastructure existence - stormwater utility - maintain and improve
- G2. Home damage during storm events - level of flood protection
- G3. Home construction to meet 100 year storm event
- G4. Flood depth and duration - increase? Hurricane evacuation?
- G5. Historic flow patterns - timing, amount, location, improve and maintain
- G6. Adequate water storage - balance of consumption with hydroperiods
- G7. Groundwater data floors and ceilings - aquifer zoning

H. Water Quality

- H1. Pollution loading
- H2. Freshwater pulses
- H3. Habitat loss
- H4. Groundwater impact
- H5. Water quality index

I. Economic Sustainability

- I1. Job creation
- I2. Home affordability
- I3. Cost of living
- I4. Property tax base
- I5. Cost to implement
- I6. Increased taxes
- I7. Environmental justice

J. Mitigation

- J1. Total acres provided
- J2. Total wetlands-function acres provided

K. Restoration/Retrofit

- K1. Natural function maintained in natural systems (i.e. flowways)
- K2. Exotics control: % and size of parcels treated and restored
- K3. Percent of residents using self-supplied infrastructure (i.e. septic tanks)
- K4. Percent ag using BMPs
- K5. Index of regional functionality (e.g. ws, wq)
- K6. Biodiversity index for flora and fauna
- K7. Enhance quality of life (QOL)

L. Public Lands Management/Use

- L1. Compatibility with land management plan
- L2. Degradation or improvement of resources on public lands
- L3. Funding

ATTACHMENT G

HUB ALTERNATIVES EVALUATION: PROPERTY RIGHTS

EVALUATION OF HUB ALTERNATIVES

ISSUE CATEGORY: PROPERTY RIGHTS

FACTORS: Vested rights, reasonable expectations, fair market value, environmental justice

<i>ALTERNATIVE</i>	<i>ASSESSMENT</i>
<i>Comprehensive Plan</i>	<i>Recognizes & Maintains</i>
	<i>Overestimates Immokalee's Potential growth</i>
<i>1A</i>	<i>1. Impacts to Ag are moderate.</i> <i>2. No mining.</i> <i>3. FGCU? DRI's?</i> <i>4. Moderate reduction in Imm. Urban Areas.</i> <i>Pelican Club & West Bay Club are under construction</i>
<i>2A</i>	<i>1. Imm. Rural area reduced.</i> <i>2. Restrictive to ag.</i> <i>3. Increased Lee County Urban 30%.</i> <i>4. Pelican Sound & West Bay are under const.</i>
<i>2B</i>	<i>1. More ag recognition</i> <i>2. Imm. Urban reduced.</i> <i>3. Corkscrew DRI's & FCGU.</i> <i>4. No mining.</i> <i>5. Pelican Club & West Bay Club under const.</i>
<i>2C</i>	<i>1. Commercial AG impractical, if possible at all.</i> <i>2. Immokalee Urban Area most severely reduced.</i> <i>3. No FGCU or Corkscrew D.R.I.</i> <i>4. Ag. Conservation Elements will not happen.</i>
	<i>Highest Negative Impact on Ag. & Immokalee Urban Area and Corkscrew DRI & FGCU.</i>
<i>3A</i>	<i>1. High negative impact on AG.</i> <i>2. Imm. Urban Area Reduced.</i> <i>3. Recognizes various DRI's.</i>
	<i>High negative impact on Ag. & Imm. Urban area, but recognizes various DRI's.</i>
<i>3B</i>	<i>1. Reduces Immok. Urban area.</i> <i>2. DRI's not recognized: Corkscrew & FGCU.</i> <i>3. Mining recognized.</i> <i>4. Ag somewhat recognized.</i>

ISSUE CATEGORY: PROPERTY RIGHTS (continued)

4A	<ol style="list-style-type: none"> 1. <i>Realistic reflection of existing property uses & vested development rights.</i> 2. <i>More balanced urban designation in Immokalee.</i>
	<i>Recognizes & maintains (except in Immokalee)</i>
4B	<ol style="list-style-type: none"> 1. <i>High neg. impacts on Ag.</i> 2. <i>Immokalee urban area reduced.</i> 3. <i>Recognizing mining.</i> 4. <i>Added criteria on urban dev.</i>
	<i>*Does not show Berm or Drainage structure improvements.</i>



CONTINUUM

ATTACHMENT H

HUB ALTERNATIVES EVALUATION: LOCAL LAND USE POLICY

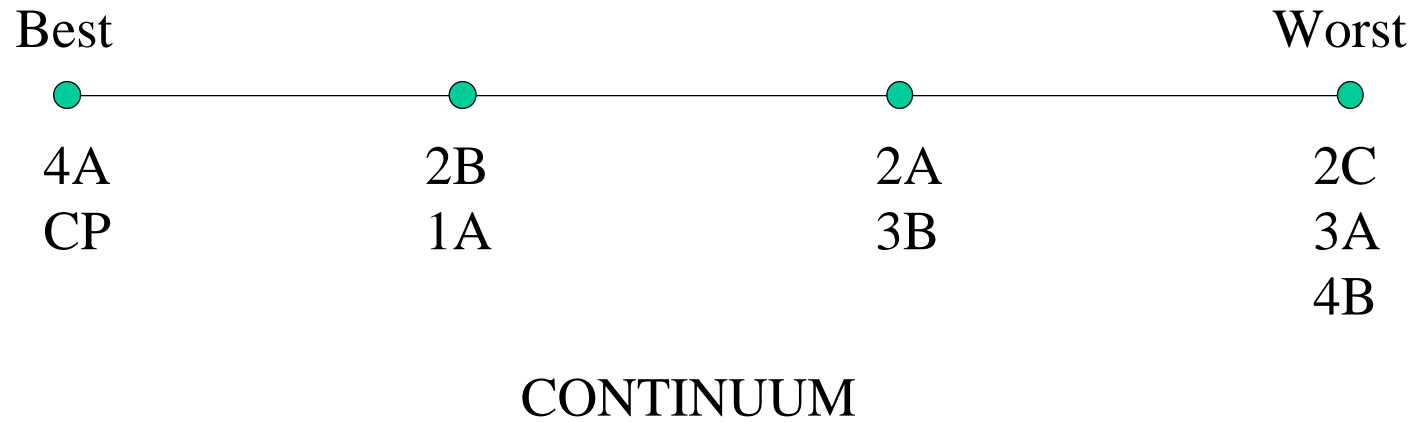
Evaluation of HUB Alternatives

Issue Category: Local Land Use Policy

Evaluation Factors ^{1,2}	Alternatives								
	Comp Plan	1A	2A	2B	2C	3A	3B	4A	4B
D1	4	3	2	3	1	1	2	4	1
D2	2	2	2	2	2	2	2	2	2
Score	6	5	4	5	3	3	4	6	3

1 Scale of 1 to 4 where 1 is worst and 4 is best

2 Total possible score is 8



ATTACHMENT I

HUB ALTERNATIVES EVALUATION: ECONOMIC SUSTAINABILITY

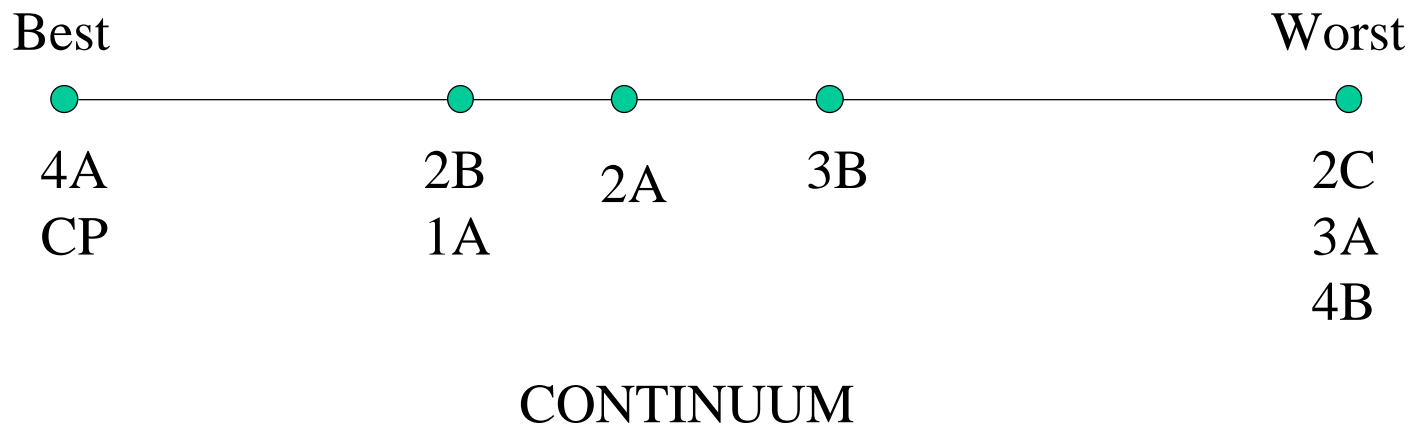
Evaluation of HUB Alternatives

Issue Category: Economic Sustainability

Evaluation Factors ^{1,2}	Alternatives								
	Comp Plan	1A	2A	2B	2C	3A	3B	4A	4B
I1	2	1	2	1	1	1	1	2	1
I2	1	1	1	1	1	1	1	1	1
I3	3	2	2	2	1	1	2	3	1
I4	3	2	2	2	1	1	2	3	1
I5	2	2	1	2	1	1	1	2	1
I6	2	2	1	2	1	1	1	2	1
I7	2	2	2	2	1	1	2	2	1
Score	15	12	11	12	7	7	10	15	7

1 Scale of 1 to 4 where 1 is worst and 4 is best

2 Total possible score is 28



ATTACHMENT J

HUB ALTERNATIVES EVALUATION: REGULATORY EFFICIENCY AND EFFECTIVENESS

Best

Worst



ALL

CONTINUUM

ATTACHMENT K

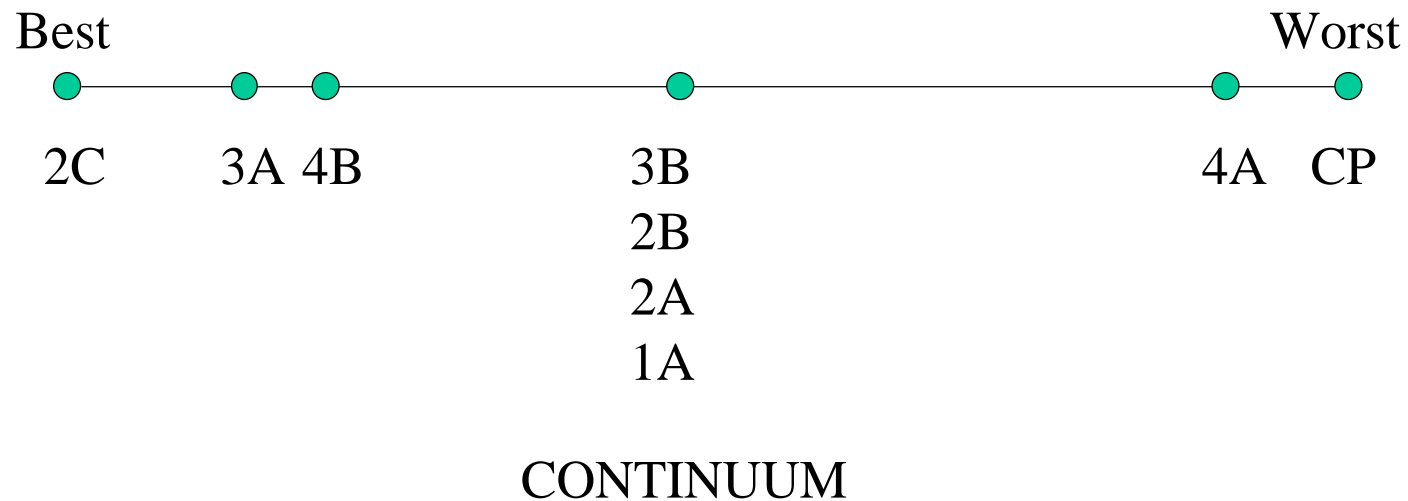
HUB ALTERNATIVES EVALUATION: AVOIDANCE OF WETLAND IMPACTS

Evaluation of HUB Alternatives

Issue Category: Avoidance of Wetland Impacts

Evaluation Factors	Alternatives								
	Comp Plan	1A	2A	2B	2C	3A	3B	4A	4B
F1	7.2	6.1	6.1	6.1	1.4	2.8	6.4	7.2	3.4
F2	3.0/2.0/2.0	2.6/2.1/1.3	2.6/1.9/1.5	2.6/2.3/1.2	0.0/0.0/1.4	0.0/0.0/2.8	2.6/1.9/1.9	2.5/2.0/2.7	0/0/3.4

Note: See interpretation in Attachment D of notes from Meeting 7.



AVOIDANCE OF WETLAND IMPACTS

HUB ALTERNATIVE: 1A

F1: ACRES AT RISK	LEGEND	ACRES OF WETLANDS	X RISK =	ACRES AT RISK
	AG	9,692	0.1	970
	URBAN	4,120	0.25	1,000
	EXISTING PRESERVE	40,000	0.01	400
	PROPOSED PRESERVE	<u>21,883</u>	0.10	<u>2,200</u>
		75,645		4,650
	INDEX =	0.061		
		6.1		
F2: FUNCTION "UNITS" AT RISK	AG	970 @ M		
	URBAN	1,000 @ L		
	EXIST PRESERVE	400 @ H		
	PROPOSED PRESERVE	1,600 @ H		
		600 @ M		
	2,000H/1,570M/1,000L			
	INDEX=2.6/2.1/1.3			

HUB ALTERNATIVE: #2A

F1: ACRES AT RISK	LEGEND	ACRES OF WETLANDS	X RISK	ACRES AT RISK
	AG-LIMITED INTENSIVE	4,262	X 0.10	= 430
	AG – RURAL	3,390	X 0.10	= 340
	DEVELOPMENT W/FLOWWAYS	5,725	X .2	= 1X150
	PRESERVE EXISTING	40,000	X 0.01	= 400
	PRESERVE PROPOSED	<u>22,552</u> 76,000	X 0.10	= <u>2,300</u> 4.620
	INDEX=	0.061		
		6.1		
F2: FUNCTION “UNITS” AT RISK	AG-LIMITED INTENSIVE	430		
	AG- RURAL	340	770 X M	
	DEVELOPEMENT	1,150	X L	
	PRESERVE EXISTING	400	X H	
	PRESERVE PROPOSED	1,600	X H	
		700	X M	
	2000H/1470M/1150L			
	2.6/1.9/1.5			

HUB ALTERNATIVE: #2B

F1 ACRES AT RISK	LEGEND	ACRES OF WETLANDS	X RISK	ACRES AT RISK
	PUBLIC	40,000	0.01	400
	PROPOSED	22,749	0.10	2,270
	AG	10,553	X 0.10	1,050
	NOTE:			
	116 SQMIL OF AG			
	+13 SQMIL OF NON-INTENS AG...ESSENTIALLY			
	129 SQ MILE NO CHANGE IN RISK			
	BUT GIS RUN IS ON 121 SQ MILES....NO CHANGE IN			
	WETLAND ACRES			
	URBAN	2,627	0.35	919
		75,929		4,700
	INDEX =	0.061		
		6.1		
F2: FUNCTION "UNITS" AT RISK	PRESERVE			
	EXIST	400 X H		
	PROPOSED	1,600 X H		
	NEW	670 X M		
	URBAN	919 X L		
	2,000H/1,730M/919L			
	2.6/2.3/1.2			

HUB ALTERNATIVE: #2C

F1: ACRES AT RISK	LEGEND	ACRES OF WETLANDS	X RISK	ACRES AT RISK
	CRPA *	71,241	X 0.0	0
	NOTE: DEFINED AS NO WETLAND LOSS			
	BUFFER:	1,595	X 0.0	0
	NOTE: DEFINE NOT WETLAND LOSS			
	URBAN	<u>3,093</u>	X 0.35	<u>1,082</u>
		75,929		1,082
	INDEX =	0.014		
		1.4		
F2: FUNCTION "UNIT" AT RISK	CRPA BUFFER URBAN 0 / 0 / 1,082	0 X H 0 X M 1,082 X L		
	0 / 0 / 1.4			

HUB ALTERNATIVE: #3A

F1: ACRES AT RISK	LEGEND	ACRES OF WETLANDS	X RISK	ACRES AT RISK
	CRPA		010	
	BUFFER		0.0	
	URBAN	<u>6,240</u>	X 0.35	<u>2,100</u>
		76,000		2,100
	INDEX =	0.028		
		2.8		
F2: FUNCTION “UNITS” AT RISK	CRPA BUFFER URBAN			
	INDEX	0/0/2.8		

HUB ALTERNATIVE: #3B

F1: ACRES AT RISK	LEGEND	ACRES OF WETLANDS	X RISK	ACRES AT RISK
	PUBLIC	40,000	0.01	400
	PRESERVED PROPOSED	23,363	0.10	2,300
	URBAN	4,014	0.35	1,400
	AG	5,675	0.10	600
	MINING	<u>2,876</u>	0.05	<u>140</u>
		75,928		4,840
		0.0637		
		6.4		
F2: FUNCTION "UNITS" AT RISK	PRESERVE:	400 X H 1,600 X H 700 X M		
	URBAN	1,400 X L		
	AG	600 X M		
	MINING	140 X M		
	2,000/1,440M/1,400L			
	2.6/1.9/1.9			

HUB ALTERNATIVE: #4A

F1: ACRES AT RISK	LEGEND	ACRES OF WETLANDS	X RISK	ACRES AT RISK
	PRESERVE EXIST:	40,000	0.01	400
	PRESERVE PROPOSED:	12,270	0.1	1,200
	MINING	2,255	0.05	100
	URBAN	6,072	0.35	2,100
	AG	13,765	0.10	1,400
	GREEN/RED	<u>1,564</u>	0.10 OR 0.35 = 0.20	<u>300</u>
		75,926		5,500
	INDEX =	0.0724		
		7.2		
F2: FUNCTION "UNITS" AT RISK	PRESERVE	400 X H 1,200		
	MINING	100 X M		
	URBAN	2,100 X L		
	AG	1,400 X M		
	GREEN/RED	300 X H		
	1,900H/1,500M/2,100L			
	2.5/2.0/2.7			

HUB ALTERNATIVE: #4B

F1: ACRES AT RISK	LEGEND	ACRES OF WETLANDS	X RISK	ACRES AT RISK
	CRPA		0.0	
	BUFFER		0.0	
	URBAN	<u>7,361</u>	0.35	<u>2,600</u>
		76,000		2,600
		0.034		
		3.4		
F2: FUNCTION “UNITS” AT RISK	CRPA			
	BUFFER			
	URBAN			
	0/0/3.4			

HUB ALTERNATIVE: COMPREHENSIVE PLAN

F1: ACRES AT RISK	SEE TRANSPARENCY PG 2 OF 3 OR ATTACHMENT D OF MEETING NOTES #7 INDEX = 7.2
F2: FUNCTION “UNITS” AT RISK	SEE TRANSPARENCY OR ATTACHMENT D OF MEETING NOTES #7 H-M-L INDEX = 3/2/2

ATTACHMENT L

HUB ALTERNATIVES EVALUATION: MITIGATION

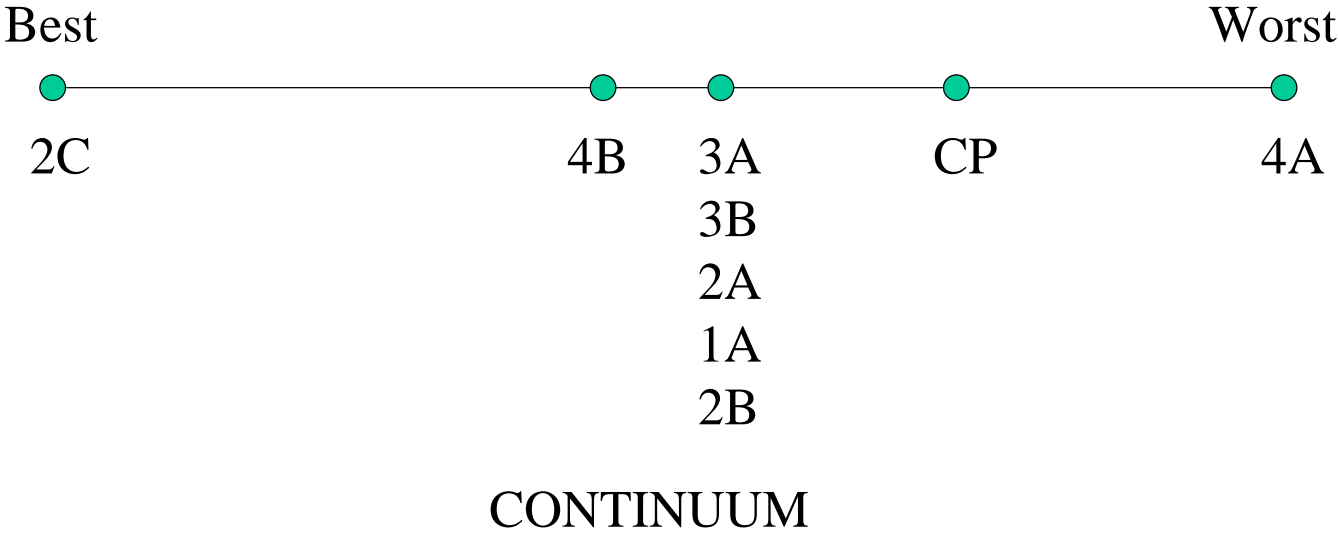
Evaluation of HUB Alternatives

Issue Category: Mitigation

Evaluation Factors	Alternatives								
	Comp Plan	1A	2A	2B	2C	3A	3B	4A	4B
J1 ¹	2.9	4.7	4.9	4.8	14.8	7.6	4.8	2.2	6.2
J2 ²	1.4	2.8	2.9	2.9	15.0	7.5	3.0	1.1	2.1

¹ratio of acres at risk to acres available for mitigation

²ratio of units at risk to units available for lift



MITIGATION

HUB ALTERNATIVE: COMPREHENSIVE

J1 AREA

$$\frac{\text{TOTAL ACRES @ RISK}}{\text{PROPOSED PRESERVE ACRES FROM F2}} = \frac{16,000}{5,600} = 2.9$$

FORMULA SAME FOR ALL ALTERNATIVE

J2 FUNCTION IN NONPUBLIC LAND

*FORMULA SAME FOR ALL ALTERNATIVES

$$\text{PROPOSED PRESERVE} = 16,000 \text{ ACRES @ H} / 76,000 = \text{INDEX H} \\ = 0.21 \times 100 = 2.1$$

$$\text{ADDITIONAL PROPOSED } 16,000 \text{ ACRES @ M} / 76,000 \text{ ACRES} = \text{INDEX M} \\ = 0.0 \times 100 = 0$$

$$\text{ADDED IN LOW? FLOWWAYS @ L} / 76,000 \text{ ACRES} = \text{INDEX L} \\ \text{CALCULATE BY} \quad = 0.0 \times 100 = 0$$

$$\text{MULTIPLY BY UNITS OF LIFT} = 21 \quad 0 \quad 0.0 \\ \frac{x1 \quad x2 \quad x1}{21 + 0 + 0} = 21 \text{ units}$$

INDEX J2B1: 21H/0H/0H

* THEN LOOK AT UNITS IMPACT (FROM F2)

$$\text{F2: } 3 \quad 2 \quad 2 \\ \text{UNITS: } \frac{x3 \quad x2 \quad x1}{9 \quad +4 \quad +2} = 15 \text{ units}$$

$$\text{INDEX} = \frac{21 \text{ UNITS}}{15 \text{ UNITS}} = 1.4$$

HUB ALTERNATIVE: 1A

J1

AREA

$$\frac{21,883}{4,650} = 4.7$$

J2-B

FUNCTION IN NON-PUBLIC LAND

PRESERVED 16,000 X H / 76,000 X 100 = 21
NEW 21, 883 – 5,883 X M / 76,000 X 100 = 8
O X L = 0

$$\begin{array}{r} 21 \quad / \quad 8 \quad / \quad 0 \\ \underline{x1 \quad x2 \quad x1} \\ 21 + 16 + 0 = 37 \text{ units} \end{array}$$

$$\text{FROM F2: } \frac{2.6}{x3} / \frac{2.1}{x2} / \frac{1.3}{x1} = 7.8 + 4.2 + 1.3$$

$$\frac{37}{13.3} = 2.8$$

HUB ALTERNATIVE: 2A

J1

AREA

$$\frac{22,552}{4,620} = 4.9$$

J2-B

FUNCTION IN NON-PUBLIC LAND

FROM F2: 2.6 / 1.9 / 1.5

$$\begin{array}{r} \underline{x3 \quad x2 \quad x1} \\ 7.8 + 3.8 + 3.0 = 14.6 \text{ units} \end{array}$$

$$\frac{42}{14.6} = 2.9$$

HUB ALTERNATIVE: 2B

J1

AREA

$$\frac{22,749}{4,700} = 4.8$$

J2-B

FUNCTION IN NON-PUBLIC LAND

$$\text{PROPOSED} = 16,000 \times H / 76,000 \times 100 = 21$$

$$\text{NEW} = 22,749 - 16,000 = 6,749 / 76,000 \times 100 = 9$$

$$\text{FLOW} = 0$$

$$21 / 9 / 0$$

$$\frac{x1 \quad x2 \quad x3}{21+18+0} = 39 \text{ units}$$

$$\text{FROM F2: } 2.6 / 2.3 / 1.2$$

$$\frac{x3 \quad x2 \quad x1}{7.8 \quad +4.6 \quad +1.2} = 13.6$$

$$\frac{39}{13.6} = 2.9$$

HUB ALTERNATIVE: 2C

J1

AREA

*CRPA makes no change from alt #1

Therefore, acres of risk do change

$$\frac{16,000}{1,082} = 14.8$$

J2-B

FUNCTION IN NON-PUBLIC LAND

$$\text{PROP: } 16,000 \times H \times 76,000 \times 100 = 21$$

$$0 \times H \times 76,000 \times 100 = 0$$

$$0 \times H \times 76,000 \times 100 = 0$$

$$\begin{array}{r} 21 / 0 / 0 \\ \underline{x1 \quad x2 \quad x1} \\ 21 +0 +0 \end{array} = 21 \text{ units}$$

$$\begin{array}{r} \text{FROM F2: } 0 / 0 / 1.4 \\ \underline{x3 \quad x2 \quad x1} \\ 0 +0 +1.4 \end{array} = 1.4$$

$$\frac{21}{1.4} = 15.0$$

HUB ALTERNATIVE: 3A

J1

AREA

*CRPA makes no change from alt #1
for proposed preserve

$$\begin{array}{r} \text{Acres of risk do change} \\ \underline{16,000} \\ 2,100 \end{array} = 7.6$$

J2-B

FUNCTION IN NON-PUBLIC LAND

$$\begin{array}{r} \text{PROP: } 16,000 \times H \times 76,000 \times 100 = 21 \\ 0 \\ 0 \end{array}$$

$$21 / 0 / 0 = 21 \text{ Units}$$

$$\begin{array}{r} \text{FROM F2: } 0 / 0 / 28 \\ \underline{x1} = 2.8 \text{ units} \end{array}$$

$$\frac{21}{2.8} = 7.5$$

HUB ALTERNATIVE: 3B

J1 AREA

$$\frac{22,363}{4,840} = 4.8$$

J2-B FUNCTION IN NON-PUBLIC LAND

$$\begin{aligned}\text{PROPOSED: } 16,000 \text{ X H} / 76,000 \text{ X } 100 &= 21 \\ \text{NEW: } 23,363 - 16,000 = 7,363 \text{ X M} / 76,000 \text{ X } 100 &= 10 \\ 0 \text{ X L} &= 0\end{aligned}$$

$$\begin{array}{r} 21 / 10 / 0 \\ \underline{x1 \quad x2 \quad x3} \\ 21 + 20 + 0 = 41 \text{ units} \end{array}$$

$$\begin{aligned}\text{FROM F2: } 2.6 / 1.9 / 1.9 \\ \underline{x3 \quad x2 \quad x1} \\ 7.8 + 3.8 + 1.9 &= 13.5 \text{ units}\end{aligned}$$

$$\frac{42}{13.5} = 3.0$$

HUB ALTERNATIVE: 4A

J1 AREA

$$\frac{12,270}{5,500} = 2.2$$

J2 FUNCTION IN NON-PUBLIC LAND

$$\begin{aligned}\text{PROPOSED: } 12,270 \text{ X H} / 76,000 \text{ X } 100 &= 16 \\ \text{NEW} &= 0 \\ \text{FLOW} &= 0\end{aligned}$$

$$\begin{array}{r} 16 / 0 / 0 \\ \hline x1 \quad x2 \quad x3 \\ 16 + 0 + 0 = 16 \text{ units} \end{array}$$

$$\begin{array}{r} \text{FROM F2: } 2.5 / 2.0 / 2.7 \\ \hline x3 \quad x2 \quad x1 \\ 7.5 + 4.0 + 2.7 = 14.2 \text{ units} \end{array}$$

$$\frac{16}{14.2} = 1.1$$

HUB ALTERNATIVE: 4B

J1

AREA

CRPA makes no change from Alt#1 for proposed preserve...therefore, acres of risk do change $\frac{16,000}{2,600} = 6.2$

J2-B

FUNCTION IN NON-PUBLIC LAND

SAME CALC AS #2C
 $21 / 0 / 0 = 21 \text{ units}$

$$\begin{array}{r} \text{F2: } 0 / 0 / 3.4 \\ \hline x1 \quad x2 \quad x3 \\ 0 + 0 + 10.2 = 10.2 \text{ units} \end{array}$$

$$\frac{21 \text{ units}}{10.2} = 2.1$$

ATTACHMENT M

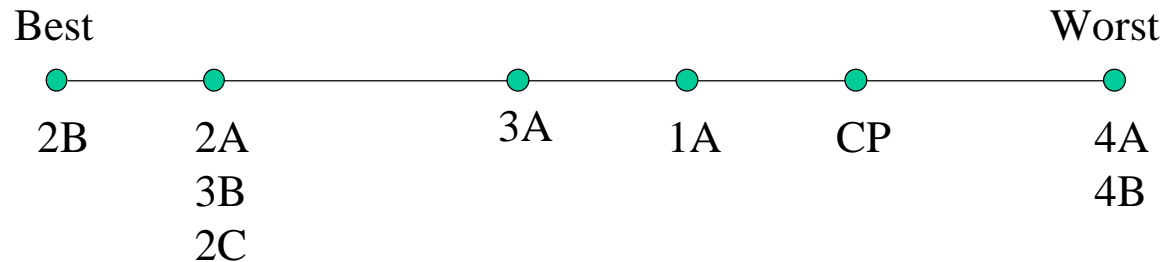
HUB ALTERNATIVES EVALUATION: ECOSYSTEM FUNCTION, WILDLIFE HABITAT, AND LISTED SPECIES

Evaluation of HUB Alternatives
Issue Category: Ecosystem Function, Wildlife Habitat,
and Listed Species

Evaluation Factors ^{1,2}	Alternatives								
	Comp Plan	1A	2A	2B	2C	3A	3B	4A	4B
B1	8	4	3	1	5	6	2	9	7
B2a	7	8	6	2	1	3	5	9	9
B2b	7	6	8	4	1	2	5	9	9
B3	5	4	1	1	3	4	2	5	6
B4	6	4	1	1	3	2	2	5	6
B5	3	3	1	1	3	3	2	2	2
B6	6	4	2	2	1	1	4	5	5
B7	7	6	5	1	2	3	4	8	8
B8	4	4	1	2	4	4	3	6	6
B9	6	2	1	1	3	3	2	6	6
B10	6	6	1	1	2	3	1	4	5
B11	7	5	4	3	1	2	2	7	7
B12	7	7	3	1	2	4	1	7	7
Score	79	63	37	21	31	40	35	82	83

1 Nine alternatives ranked by Factor

2 Total possible score is 117



CONTINUUM

ATTACHMENT N

HUB ALTERNATIVES EVALUATION: CUMULATIVE AND SECONDARY IMPACTS

ALTERNATIVE EVALUATION TEMPLATE

ADG: JULY 30, 1998

HUB
ALTERNATIVE: 4A

ISSUE/FACTOR CATEGORY: Cummulative and Secondary Impacts

MEASUREMENT NAME (e.g., <i>A1. market value</i>)	ASSESMENT NOTES
E1 Infant Mortality	More urban, more ag = more infant mortality, less infant mort. – like comp plan
E2 Road Needs'	More road needs than 4b More urban
E3 Air Pollution	Same as above
E4 Water Pollution	5 All the same amount of urban & ag
E5 Crime	All the same
E6 Hurricane	3
E7 EPA WQI	6
E8 Impacts to Wetlands	8 Comp Plan 7
E10 Impacts to Hydrol	4 Impact
E11 Lands in prot status	9

ALTERNATIVE EVALUATION TEMPLATE

ADG: JULY 30, 1998

HUB ALTERNATIVE: 4B

ISSUE/FACTOR CATEGORY: Cummulative and Secondary Impacts

MEASUREMENT NAME (e.g., <i>A1. market value</i>)	ASSESMENT NOTES
E1 Infant Mortality	Same as 4A.
E2 Road Needs'	High road need cost – road thru CREW expands urban area
E3 Air Pollution	Same as above.
E4 Water Pollution	8 Amount of urban/ag
E5 Crime	All the same
E6 Hurricane	5
E7 EPA WQI	7
E8 Impacts to Wetlands	9 Tab
E10 Impacts to Hydrol	5
E11 Lands in prot status	8 7 = Comp Plan

ALTERNATIVE EVALUATION TEMPLATE

ADG: JULY 30, 1998

HUB
ALTERNATIVE: 2C

ISSUE/FACTOR CATEGORY: Cummulative and Secondary Impacts

MEASUREMENT NAME (e.g., <i>A1. market value</i>)	ASSESMENT NOTES
E1 Infant Mortality	Better than comp plan Less urban than comp
E2 Road Needs'	Less urban than 3a. Less roads
E3 Air Pollution	Same as above.
E4 Water Pollution	2 Next amount of urban & ag
E5 Crime	All the same
E6 Hurricane	6
E7 EPA WQI	5
E8 Impacts to Wetlands	1 Least amount of prot.
E10 Impacts to Hydrol	2
E11 Lands in prot status	5

ALTERNATIVE EVALUATION TEMPLATE

ADG: JULY 30, 1998

HUB
ALTERNATIVE: 3A

ISSUE/FACTOR CATEGORY: Cummulative and Secondary Impacts

MEASUREMENT NAME (e.g., <i>A1. market value</i>)	ASSESMENT NOTES
E1 Infant Mortality	More urban better than 2c
E2 Road Needs'	Less roads in Critical Resource Protection Area.
E3 Air Pollution	Same as above.
E4 Water Pollution	7 of urban/ag amount
E5 Crime	All the same
E6 Hurricane	7
E7 EPA WQI	6
E8 Impacts to Wetlands	2 Next based on tab.
E10 Impacts to Hydrol	3
E11 Lands in prot status	6

ALTERNATIVE EVALUATION TEMPLATE

ADG: JULY 30, 1998

HUB
ALTERNATIVE: 1A

ISSUE/FACTOR CATEGORY: Cummulative and Secondary Impacts

MEASUREMENT NAME (e.g., <i>A1. market value</i>)	ASSESMENT NOTES
E1 Infant Mortality	Urban core lots of preserve
E2 Road Needs'	Similar to 2B, more urban below 2B
E3 Air Pollution	Same as above.
E4 Water Pollution	Balanced mix or urban/preserve, but no flowways
E5 Crime	4 all the same
E6 Hurricane	8
E7 EPA WQI	4
E8 Impacts to Wetlands	6 Tab
E10 Impacts to Hydrol	6
E11 Lands in prot status	4

ALTERNATIVE EVALUATION TEMPLATE

ADG: JULY 30, 1998

HUB
ALTERNATIVE: 3B

ISSUE/FACTOR CATEGORY: Cummulative and Secondary Impacts

MEASUREMENT NAME (e.g., <i>A1. market value</i>)	ASSESMENT NOTES
E1 Infant Mortality	Between 2A & 2B Good areas of preserve, more urban
E2 Road Needs'	Less roads than 4a, 4b
E3 Air Pollution	Same as above
E4 Water Pollution	6 All the same amount of urban and ag
E5 Crime	
E6 Hurricane	2 Good flowways
E7 EPA WQI	3
E8 Impacts to Wetlands	3 Based on tab
E10 Impacts to Hydrol	2a, 2b, 3b about the same
E11 Lands in prot status	1 Based on tables

ALTERNATIVE EVALUATION TEMPLATE

ADG: JULY 30, 1998

HUB
ALTERNATIVE: 2A

ISSUE/FACTOR CATEGORY: Cummulative and Secondary Impacts

MEASUREMENT NAME (e.g., <i>A1. market value</i>)	ASSESMENT NOTES
E1 Infant Mortality	More urban, more preserves, less ag
E2 Road Needs'	More urban than 3A
E3 Air Pollution	Same as above
E4 Water Pollution	3 Amount of urban & ag
E5 Crime	All the same
E6 Hurricane	4 Good flowways
E7 EPA WQI	1 Least amount of urban/ag
E8 Impacts to Wetlands	5 Tab
E10 Impacts to Hydrol	1 2a, 2b, 3b about the same
E11 Lands in prot status	3

ALTERNATIVE EVALUATION TEMPLATE

ADG: JULY 30, 1998

HUB
ALTERNATIVE: 2B

ISSUE/FACTOR CATEGORY: Cummulative and Secondary Impacts

MEASUREMENT NAME (e.g., <i>A1. market value</i>)	ASSESMENT NOTES
E1 Infant Mortality	Less urban than 2A, more preserve than 1A
E2 Road Needs'	Less than 2C Not major roads to support ag & pressure
E3 Air Pollution	Same as above.
E4 Water Pollution	1 Amount of urban & ag.
E5 Crime	All the same
E6 Hurricane	1 Most flowways, less building in coastal zones.
E7 EPA WQI	2 amount of urban/ag
E8 Impacts to Wetlands	4 tab
E10 Impacts to Hydrol	1 2a, 2b, 3b about the same
E11 Lands in prot status	2 B

ALTERNATIVE EVALUATION TEMPLATE

ADG: JULY 30, 1998

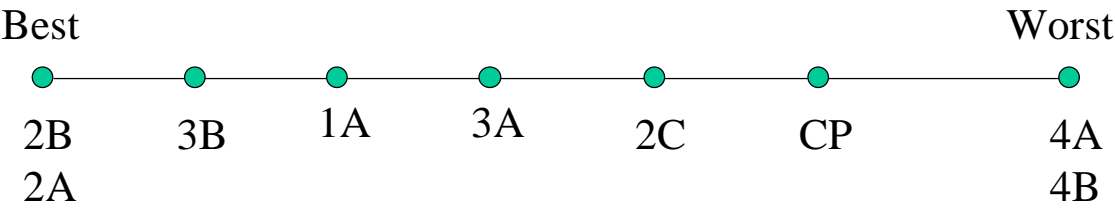
HUB
ALTERNATIVE: _____

ISSUE/FACTOR CATEGORY: Cummulative and Secondary Impacts_____

MEASUREMENT NAME (e.g., <i>A1. market value</i>)	ASSESMENT NOTES
E1 Infant Mortality	More urban, more ag = more infant mortality, less infant mort. – like comp plan
E2 Road Needs'	More road needs than 4b More urban
E3 Air Pollution	Same as above
E4 Water Pollution	(5) All the same amount of urban & ag
E5 Crime	All the same
E6 Hurricane	(3)
E7 EPA WQI	(6)
E8 Impacts to Wetlands	(8) Comp Plan 7
E10 Impacts to Hydrol	(4) Impact
E11 Lands in prot status	(9)

CUMMULATIVE IMPACTS:

EVALUATION FACTORS											
Alternative	E1	E2	E3	E4	E5	E6	E7	E8	E10	E11	Mean
1A	4	2	2	4	/	8	4	6	7	4	4.1
2A	1	5	5	3	/	4	1	5	2	3	2.9
2B	3	1	1	1	/	1	2	4	2	2	1.7
2C	6	3	3	2	/	6	5	1	3	5	3.4
3A	5	4	4	7	/	7	6	2	4	6	4.5
3B	2	6	6	6	/	2	3	3	2	1	3.1
4A	7	7	7	5	/	3	7	7	5	7	5.5
4B	8	8	8	8	/	5	8	8	6	8	6.7



CONTINUUM

ATTACHMENT O

HUB ALTERNATIVES EVALUATION: PUBLIC LAND MANAGEMENT/USE

EVALUATION OF HUB ALTERNATIVES

ISSUE CATEGORY: PUBLIC LAND MANAGEMENT/USE

ALTERNATIVE	MEASUREMENT	ASSESSMENT NOTES
1A	L1 Land Mgmt Plan	No flowways from CREW affect Estero Batter, Estero Bay A.D. low middle
	L2 Degradation	
2A	L1 Land Mgmt Plan	<ol style="list-style-type: none"> 1. Some intensive uses urban and adv rural to CREW affect CREW mgmt plan. Mod high. 2. Good flowways 3. Large contiguous areas next to public land. 4. More detail of existing land uses.
	L2 Degradation	
2B	L1 Land Mgmt Plan	<ol style="list-style-type: none"> 1. Still some uncertainty on effect of potentially intensive Ag on CREW mgmt, but relatively little. 2. Relatively contiguous “preserve/conservation” around CREW 3. Green category offers best levels of protection. Mod high. 4. Shows flowways
	L1 Degradation	
2C	L1 Land Mgmt Plan	<ol style="list-style-type: none"> 1. Green heavily depends on permit criteria which do not effectively protect public land mgmt plans. 2. Not enough detail to predict effect...mid low.
	L2 Degradation	

NOTES: PUBLIC LAND MANAGEMENT/USE

1. We can put together a combination of 2A and 2B with criteria.
2. Proposed combining L1, L2, L3
3. Alternatives may be too similar

Overall Rank

Top	1	2B, 2A
	5	3B
	6	1A
	7	3A
	8	2C
	9	4A, comp Plan
	10	4B

4. Overall difficulty in comparing alternatives
 - a) some color code may mean different things
 - b) different reg. Standards greatly influence

Methodology

1. Before funding, we boiled down 3 to 1
2. We primarily assessed amount of preserve land (+), ag level (+ to -) or development land (-) adjacent to public lands
3. Flow ways to estuarine public lands

ATTACHMENT P

HUB ALTERNATIVES EVALUATION: WATER QUALITY

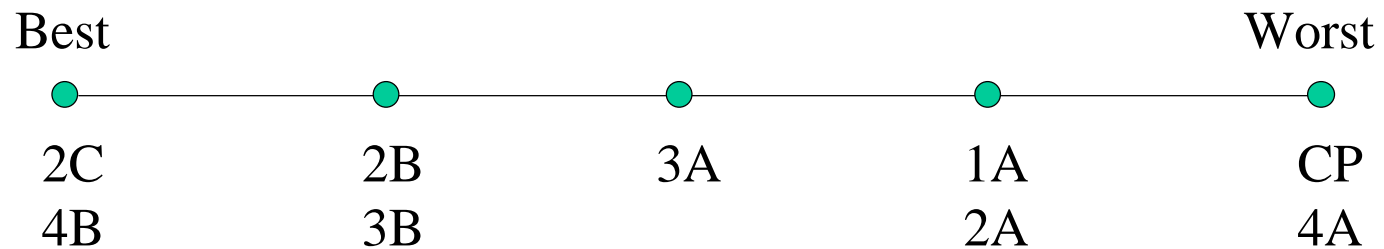
Evaluation of HUB Alternatives

Issue Category: Water Quality

Evaluation Factors ^{1,2}	Alternatives								
	Comp Plan	1A	2A	2B	2C	3A	3B	4A	4B
H1	0	0	0	+	+	+	+	0	+
H2	0	0	0	+	+	0	+	0	+
H3	0	+	+	+	+	+	+	0	+
H4	+	0	0	0	+	+	0	+	+
H5	?	Midworse	Almost worst	best	mid	Midworst	Best	Worst	Mid

1 factors 1 through 4: addresses (+) or does not address (0) the factor

2 comparison of alternatives based on a derived water quality index



CONTINUUM

ATTACHMENT Q

HUB ALTERNATIVES EVALUATION: RESTORATION RETROFIT

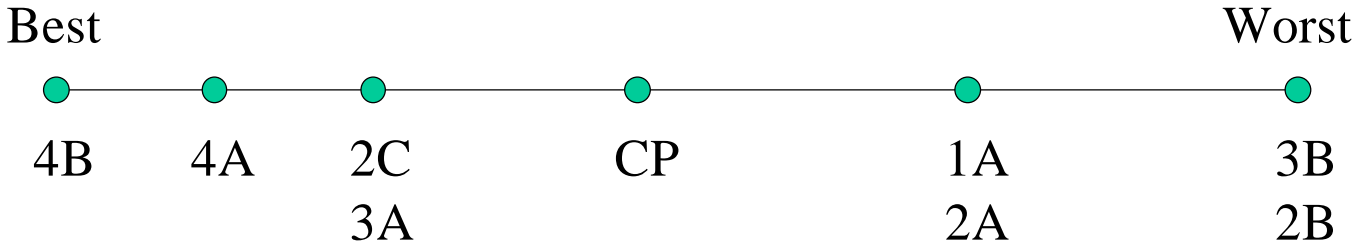
Evaluation of HUB Alternatives

Issue Category: Restoration/Retrofit

Evaluation Factors ^{1,2}	Alternatives								
	Comp Plan	1A	2A	2B	2C	3A	3B	4A	4B
K1	0	+	+	0	+	+	+	+	+
K2	+	0	0	0	+	+	0	+	+
K3	+	0	0	0	+	+	0	+	+
K4	+	0	0	0	0	0	0	0	0
K5	0	+	+	+	+	+	0	+	+
Score	3	2	2	1	4	4	1	4	4

1 addresses (+) or does not address (0) the factor

2 total possible score is 5



CONTINUUM

ATTACHMENT R

HUB ALTERNATIVES EVALUATION: WATER MANAGEMENT

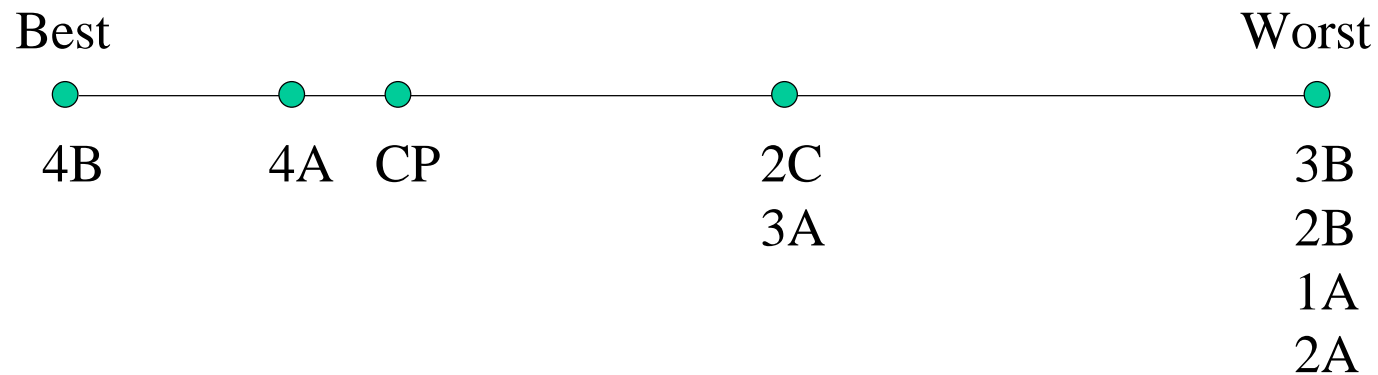
Evaluation of HUB Alternatives

Issue Category: Water Management

Evaluation Factors ^{1,2}	Alternatives								
	Comp Plan	1A	2A	2B	2C	3A	3B	4A	4B
G1	+	0	0	0	0	0	0	+	+
G2	0	0	0	0	0	0	0	0	+
G3	+	0	0	0	0	0	0	0	0
G4	0	0	0	0	0	0	0	0	+
G5	0	+	+	+	+	+	+	+	+
G6	+	0	0	0	+	+	0	+	+
G7	0	0	0	0	0	0	0	0	0
Score	3	1	1	1	2	2	1	2	5

1 addresses (+) or does not address (o) the factor

2 total possible score is 7



CONTINUUM

ATTACHMENT S

ALTERNATIVE 2 CRITERIA

Preserve

True preservation/conservation - primarily existing and proposed public land to be managed for wetlands and wildlife protection.

- 1) No public utilities
- 2) No new or expanded transportation
- 3) No wellfield expansion
- 4) Restore/retrofit areas with hydrologic problems
 - a) SCCE
 - b) US 41 culverts
 - c) Fix I-75 south canal plugs (not built as permitted)
 - d) Protect Rookery Bay watershed (Belle Meade District 6)
 - e) Fix District 6
 - f) Fix Cocohatchee Canal right
 - g) Restore Clam Bay right
 - h) Fix Naples Bay by fixing Golden Gate Canal
- 5) Mitigation receiving area (only those lands shown as preserve that are not currently identified as public lands).

Golden Gate Estates

Zone 1:

- a) Avoid/minimize and mitigate wetland impacts
- b) Entrance roads must be culverted
- c) Listed species addressed on or off site (example: red-cockaded woodpecker and Big Cypress fox squirrel)
- d) Develop resource pamphlet that educates public on resource issues
- e) FL yards and neighborhoods

Zones 2: Gold Gate Picayune (mitigation receiving area)

(Note: This system still intact, can be restored, potential fire break).

- a) No more than 10% fill
- b) No more than 50% fill in pervious
- c) Fill cannot impede sheet flow
- d) eliminate exotics
- e) Develop resource pamphlet that educates public on resource issues
- f) FL yards and neighborhoods program
- g) Entrance roads must be culverted

Urban

- 1) Adopt urban zone criteria for 4 B
- 2) Follow existing COE standards for wetland prof.
- 3) Encourage emergent and shoreline planting in stormwater retention lakes.

Agriculture

Same as definition as 2A.

No golf courses or rural ranchettes - uses that are not associated with true agriculture.

Rural

Orange - Rural, low density mixtures of uses similar to existing positive urban services only.

North A

- 1) Avoid and minimize impacts to wetlands
- 2) nesting areas protected (example: sandhill crane, b-o)
- 3) Wide-ranging species, including fox squirrels mitigated off-site. Min 1:1
- 4) Maintain or improve hydrol (example: weirs in Cocohatchee Canal).
- 5) Adopt buffer transitional zone criteria (4B) 1998 base year

South B - Somewhat lower density, more rural than A. Uses similar to existing (single-family nursery).

- 1) Avoid and minimize impacts to wetlands
- 2) Protect RCW habitat to the extent possible, but where viability affected go off - site at 1:1 (develop HCP for RCW)
- 3) Wide-ranging species mitigated off-site (bear)
- 4) Maintain or improve hydrology (example: I-75 canal-blasted too deep).
- 5) Adopt buffer/transition zone criteria (4B) 1998 base year

ATTACHMENT T

SECTION C GIS TABLES

COMPREHENSIVE PLAN

ATTACHMENT U

STUDY AREA: PROSPECTIVE ZOOMS MAP

ATTACHMENT V

MEETING No. 8:

SUMMARY PRESENTATION